

Town of Herndon Drinking Water Quality Annual Report 2003

This report, for Calendar Year 2003, is designed to inform citizens about the town's drinking water quality.

Our goal is to provide the Town of Herndon with a safe and dependable supply of drinking water, and to inform concerned citizens of the efforts taken to protect your water supply. The quality of your drinking water must meet strict state and federal requirements administered by the Virginia Department of Health (VDH).

If you have questions about this report, or if you desire additional information about any aspect of your drinking water or desire to know how to participate in decisions that may affect the quality of your drinking water, please contact us at (703) 435-6853.

Ordinances and resolutions pertaining to water quality and distribution are advertised locally prior to Town Council bearings. Town Council work sessions and regular sessions are beld twice a month on Tuesday nights except for the months of December, June, July, and August. In each of these months the Town Council meets for only one work session and one regular session.

Please refer to the town calendar regarding dates and times.



General Information

Drinking water, including bottled drinking water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water is a health risk. More information can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

The sources of drinking water (both tap water and bottled water)include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include: (1) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife. (2) Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming. (3) Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses. (4) Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems. (5) Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities. In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Sources of Drinking Water in the Town of Herndon

The Town of Herndon draws surface water from two primary sources: the Potomac River and the Occoquan Reservoir fed by the Occoquan River. Treatment facilities are located at opposite ends of Fairfax County and feed an interconnected distribution system. The James J. Corbalis, Jr. Treatment Plant, located in the northern part of Fairfax County, draws water from the Potomac River. The Occoquan Treatment Plant draws water from the Occoquan Reservoir, which is located on the southern border of Fairfax County.

Source Water Assessment and Protection

Under provisions of the Safe Drinking Water Act, states are required to develop comprehensive Source Water Assessment Programs that identify the watersheds that supply public tap water, provide an inventory of contaminants in the watershed, and assess susceptibility to contamination in the watershed. Source water assessments for the Water Authority's watersheds were conducted by the Virginia Department of Health. Based on the criteria developed by the state, the Potomac River and Occoquan Reservoir were determined to be of high susceptibility to contamination. This determination is consistent with the state's finding of other surface waters (rivers, lakes, streams) throughout the Commonwealth of Virginia.

The assessment consists of maps of the watershed area that was evaluated, an inventory of known land use activities, and documentation of any known source water contamination within the last five years. A secure version of the report is available by contacting the Water Authority or by visiting the Water Authority's website at www.fcwa.org.

Treatment of the Town of Herndon Drinking Water Supply

Water treatment is the process of cleaning water so it is safe for human consumption. When raw water enters the treatment plant, coagulants are added to make small particles adhere to one another, become heavy, and settle in a sedimentation basin.

The water is then filtered to remove the remaining fine particles. Treatment chemicals that are added are: chlorine to kill harmful bacteria and viruses, a corrosion inhibitor to minimize dissolution of lead used in older household plumbing, and fluoride to protect teeth. If odors or unpleasant tastes are present in the raw water, powdered activated carbon and potassium permanganate are added to the treatment process.

Test Results

Some sample results were obtained from the Fairfax County Water Authority because that agency monitors and supplies the water source to our system.

We constantly monitor for various contaminants in the water supply to meet all regulatory requirements. The tables list only those contaminants that had some level of detection. Many other contaminants have been analyzed but were not present or were below the detection limits of the lab equipment.

Some of our water quality data is from testing done in years prior to 2003. However, the state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Even though some of our data may be more than one year old, it is accurate.

Maximum Contaminant Levels are set at very stringent levels by the U.S. Environmental Protection Agency. In developing the standards, the EPA assumes that the average adult drinks 2 liters of water each day throughout a 70-year life span. The EPA generally sets Maximum Contaminant Levels at levels that will result in no adverse health effects from some contaminants or a one-in-tenthousand to one-in-a-million chance of having the described health effect for other contaminants.



I. Definitions

Contaminants in your drinking water are routinely monitored according to federal and state regulations. The tables on the next few pages show the most recent results of our monitoring. In the tables and elsewhere in this report you will find many terms and abbreviations you might not be familiar with. The following definitions are provided to help you better understand these terms.

Parts per million (ppm) — one part per million. This fraction corresponds to one minute in two years or a single penny in \$10,000.

Parts per billion (ppb) — one part per billion. This fraction corresponds to one minute in 2,000 years or a single penny in \$10,000,000.

Parts per trillion (ppt) — one part per trillion. This fraction corresponds to one minute in 2,000,000 years or a single penny in \$10,000,000,000.

Picocuries per liter (pCi/L) — picocuries per liter is a measure of the radioactivity in water.

Nephelometric Turbidity Unit (NTU) — nephelometric turbidity unit is a measure of the clarity or cloudiness of water. Turbidity in excess of 5 NTU is just noticeable to the average person. Turbidity is monitored because it is a good indicator of the effectiveness of our filtration system.

Action Level (AL) — the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Treatment Technique (TT) — a required process intended to reduce the level of a contaminant in drinking water.

Maximum Contaminant Level (MCL) — the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG) — the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

NRL — no regulatory limit.

Water Quality Results

II. Lead and Copper Contaminants — Detections are described below.

Contaminant	Units of Measurement	Action Level	MCLG	Results of samples for the 90th Percentile Value	Action Level Exceedance (Y/N)	Sampling Year	# of Sampling Sites Exceeding Action Level	Typical Source of Contamination
Lead	ppb	15	0	5.0	N	2001	0	Corrosion of household plumbing systems
Copper	ppm	1.3	1.3	0.0571	N	2001	0	Corrosion of household plumbing systems

III. Microbiological Contaminants — There were no detections.

IV. Turbidity — Detections are described below.

Contaminant	Treatment Technique Limits	Average Annual Turbidity	Level detected	Violation (Y/N)	Sampling Year	Typical Source of Contamination
Turbidity	1) 5 NTU maximum	0.05	1. Highest Single	N	2003	Soil Runoff
	2) 0.5 NTU		Measurement = 0.42.			
	95% of the time	6	Lowest Monthly Percentage = 100%			

V. Total Organic Carbon — Detections are described below.

Total Organic Carbon			Quarterly Running Annual Average ²	Minimum	Maximum	Major Source in Drinking Water
	TT¹ (ratio)	n/a	1.2	1.0	1.6	Naturally present in the environment

¹ TT=Treatment Technique, Total Organic Carbon has no health effects. However, it provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes and haloacetic acids. Compliance with the treatment technique reduces the formation of these disinfection byproducts.

n/a = not applicable

VI. Total Chlorine — (ppm)

MRDLG ¹	MRDL ²	Highest Quarterly Average	Minimum	Maximum	Violation (Y/N)	Major Source in Drinking Water
4	4	2.9	1.2	4.0	No	Water additive used to control microbes

¹ Maximum Residual Disinfectant Level Goal.

² Quarterly Running Annual Average for the monthly ratio of actual Total Organic Carbon removal versus required Total Organic Carbon removal between source and treated waters. QRAA is to be ≥ 1 to be in compliance.

² Maximum Residual Disinfectant Level.

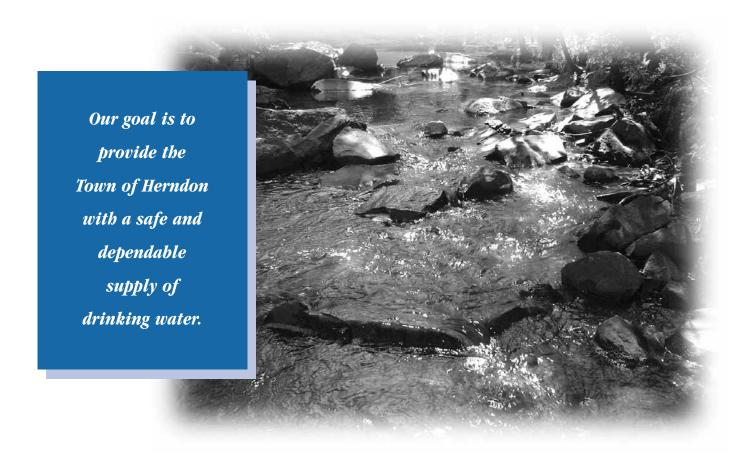
Regulated (Contamina	nts						
Contaminant	Units of Measurement	MCLG	MCL	Level Detected	Violations (Y/N)	Range of Detection at Sampling Points	Sampling Year	Typical Source of Contamination
Barium	ppm	2	2	0.07	N	0.03-0.07	2003	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Fluoride	ppm	4	4	1.0	N	0.6-1.0	2003	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories."
Nitrate (as Nitrogen)	ppm	10	10	1.6	N	1.1-1.6	2003	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits."
Nitrite (as Nitrogen)	ppm	1	1	0.01	N	ND-0.01	2003	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
*Beta/Photon Emitte	er (pCi/L)	0	50	3.6	N	3.6-3.6	2003	Decay of natural and man-made deposits
Alpha Emitters	(pCi/L)	0	15	0.7	N	0.7-0.7	2003	Erosion of natural deposits

^{*}The MCL for the Beta particles is written as 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for Beta Particles.

Contaminant	Units of Measurement	MCLG	MCL	System Running Annual Average	Violations (Y/N)	System Range of Detection at Sampling Points	Sampling Year	Typical Source of Contamination
Total Trihalomethanes	ppb	80	80	50	N	10-93	2003	By-Product of drinking water chlorination
HAA5	ppb	60	60	18	N	3-27	2003	By-Product of drinking water chlorination

Unregulated Contaminants

Contaminant	Units of Measurement	MCLG	MCL	Level Detected	Violations (Y/N)	Range of Detection at Sampling Points	Sampling Year	Typical Source of Contamination
Chloroform	ppb	NRL	NRL	12.9	N	7.3-12.9	2003	By-product of drinking water chlorination
Bromodichlorometh	hane ppb	NRL	NRL	6.2	N	2.7-6.2	2003	By-product of drinking water chlorination
Chlorodibromometh	hane ppb	NRL	NRL	2.4	N	1.0-2.4	2003	By-product of drinking water chlorination



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